Appendix G

Section 404(b)(1) Evaluation

APPENDIX G
MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY LAGUNA MADRE, TEXAS NUECES, KLEBERG, KENEDY, WILLACY, AND CAMEREON COUNTIES, TEXAS

SECTION 404 (b) (1) EVALUATION

I. Project Description

a. Location

The project area for maintenance dredging of the Laguna Madre Reach of the Gulf Intracoastal Waterway (GIWW) encompasses from the JFK Causeway, which joins Flour Bluff to Padre Island, to the old Queen Isabella Causeway, which once joined Port Isabel to South Padre Island, and roughly 1 mile inland on the east and west (see Figure 1-1 of the FEIS). The coastline of this area extends across five Texas counties: Nueces, Kleberg, Kenedy, Willacy, and Cameron.

b. General Description

The Laguna Madre is subdivided into two basins referred to as the Upper Laguna Madre (ULM) and the Lower Laguna Madre (LLM), separated by the Saltillo Flats (Land Bridge). The Land Bridge consists of an extensive area of sporadically inundated tidal flats, which start approximately 10 miles south of the mouth of Baffin Bay and extend southward approximately 35 miles (Coastal Impact Monitoring Program, 1995). The U.S. Army Corps of Engineers (USACE) completed construction of the GIWW within the project area in 1949. Upon completion of the GIWW, the ULM and LLM, once separated by the Land Bridge, became permanently connected. The portion of the GIWW that connects the ULM and LLM is commonly referred to as the "Land Cut."

For purposes of this project, the Laguna Madre section of the GIWW is 117 miles from the JFK Causeway to the old Queen Isabella Causeway. The channel dimensions today remain at 125 feet wide by 12 feet deep, plus allowable overdraft and advanced maintenance for a total depth of 16 feet. The main channel requires maintenance dredging every 23 to 60 months in selected reaches to remove approximately 200,000 cubic yards (cy) to 3 million cy of sediment (USACE, 1994). Maintenance is performed by contracted cutterhead suction dredges, and materials dredged are placed by hydraulic pipeline on both upland and open-bay placement areas (PAs). The ULM reach includes three water exchange passes, generally 5 feet deep by 200 feet wide, which were constructed to improve water circulation and fish migration in an area known locally as the Hole (approximately channel mile 590) (USACE, 1975). The LLM reach intersects the GIWW tributary to Port Mansfield (Port Mansfield Channel) and then the Tributary Channel to Harlingen via Arroyo Colorado.

c. Authority and Purpose

A draft Reconnaissance Report for addressing problems and concerns along the reach of the GIWW between Corpus Christi and Port Isabel, prepared under Section 216 Authority, was submitted to the USACE for review in 1994. However, the report contained unresolved issues and was completely revised in 1997 after the issues were resolved. The earlier report focused on navigation problems, environmental and cultural resource concerns, restoration measures and long-term disposal options, and the potential rerouting of the Channel near Port Isabel to reduce traffic delays and navigation hazards. The final report determined that this reach of the GIWW is fully functional and does not include any area which poses serious operational problems for commercial navigation and that there is no Federal interest in a channel realignment plan at Port Isabel. Based on these conclusions, the USACE decided that it would be inappropriate to perform an optimization study of channel dimensions as a part of a feasibility study because 1) it is very unlikely that optimization would result in dimensions greater than those that currently exist due to traffic load and dimensions of connecting channels, and 2) Congressional authorization is not required to maintain a channel at dimensions less than those authorized.

Because the need for an EIS and Dredged Material Management Plan (DMMP) still existed as a result of court action, the USACE determined that studies to reevaluate the economic feasibility of the project and prepare a DMMP and EIS would continue under the direction of the Dredged Material Management Program and Operations and Maintenance authority.

In the 1975 EIS, the Texas Section of the GIWW (from the Sabine-Neches waterway near Louisiana to Port Isabel near Mexico) was broken down into three reaches. Reach 3 included the area between the JFK Causeway and the Texas-Mexico border. Within the Reach 3 evaluation, two subsections were evaluated including the Encinal Peninsula to the Lower Laguna Madre (LLM) and the LLM to Port Isabel, Texas. In addition, tributary channels, including the Port Mansfield Channel and the Channel to Harlingen, were addressed.

The Laguna Madre is a long, narrow, hypersaline lagoon extending from Corpus Christi Bay to the southern end of South Bay near the Rio Grande. Since most of the public and agency concerns about the project are with maintenance dredging and placement practices in the Laguna Madre, the project area for this FEIS extends from the JFK Causeway, which joins Flour Bluff to Padre Island, to the old Queen Isabella Causeway, which once joined Port Isabel to South Padre Island, and roughly 1 mile inland on the east and west. Figure 1-1 depicts the northern, middle, and southern reaches of the Laguna Madre project area. The coastline of this area extends across five Texas counties: Nueces, Kleberg, Kenedy, Willacy, and Cameron.

The Laguna Madre is subdivided into two basins referred to as the Upper Laguna Madre (ULM) and the LLM, with the two being separated by the Saltillo Flats (Land Bridge). The Land Bridge consists of an extensive area of sporadically inundated tidal flats, which start approximately 10 miles south of the mouth of Baffin Bay and extend southward approximately 35 miles (Coastal Impact Monitoring Program, 1995). The USACE completed construction of the GIWW in the project area in 1949. Upon completion of

the GIWW, the ULM and LLM, once separated by the Land Bridge, became permanently connected. The portion of the GIWW that connects the ULM and LLM is commonly referred to as the "Land Cut."

The State of Texas is the local sponsor for the GIWW with the Texas Department of Transportation (TxDOT) as the designated representative. To accomplish the goal of developing scientific investigations to address environmental concerns raised, an Interagency Coordination Team (ICT) was established. The ICT is composed of representatives from TxDOT, Texas General Land Office, Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, Texas Water Development Board, National Marine Fisheries Service, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and USACE. The goal of the ICT was to assist the USACE in developing the scopes of work for the environmental studies and to oversee and critique the study results. The ICT met for the first time in February 1995 and has met at scheduled intervals throughout the project. One of the purposes of the ICT is to assist in the development of the environmental documentation for the project that will fully address the environmental concerns for the continued maintenance and operation of the GIWW in the Laguna Madre and tributary channels. Toward this effort, the ICT 1) has assisted the USACE in the development and implementation of the scopes of work for the scientific investigations, has reviewed drafts of the scientific investigations, the DMMP, and the FEIS; and 3) will provide a forum for continued coordination on the preferred alternative (DMMP) through the life of the project and provide advice on modifying management plans for the PAs.

The purpose of the FEIS is to update existing information and provide additional information and environmental analysis concerning continued maintenance dredging of the GIWW through the Laguna Madre.

d. General Description of Dredged or Fill Material

(1) General Characteristics of Material

All dredged material is maintenance or shoaled material from the Laguna Madre Reach of the GIWW. A complete description of the dredged material can be found in the DMMP in Appendix A and in various sections of Appendix H to the FEIS.

(2) Quantity of Material

Table 1 provides the quantities, by PA, of the maintenance material dredged historically. This is not expected to change unless the increase in confined PAs and other placement practices decreases the amount of reworking of maintenance material after placement.

Table 1

Reach	Segment	PA	Average % Sand	# Uses (1949-1995)	Frequency of Use (1949-1995) (yrs)	Size of Designated PA (ac)	Per Cycle Discharge (cy)	Annual Discharge (cy)
1	1	175	N/D	0	NA	33.29	NA	NA
		176	50.10	1	46.4	127.41	128,041	2,760
		177	72.20	1	46.4	32.14	74,691	1,610
		178	N/D	2	23.2	146.95	100,408	4,328
		179	68.20	2	23.2	76.37	30,940	1,334
		180	N/D	5	9.28	126.64	122,564	13,207
		180A	N/D	NA	NA	103.74	NA	NA
		181	36.28	6	7.73	97.57	73,253	9,472
	2	182	4.22	3	15.5	72.33	61,126	3,952
		182S	N/D	NA	NA	33.47	NA	NA
		183	79.90	3	15.5	135.46	115,008	7,436
		184	7.35	4	11.6	98.72	84,640	7,297
		185	58.20	6	7.73	105.62	104,431	13,504
		186	33.73	10	4.64	212.03	126,495	27,262
	3	187	24.02	13	3.57	128.56	183,893	51,522
		188	27.14	14	3.31	142.34	196,804	59,380
		189	N/D	14	3.31	161.92	157,432	47,501
		190	20.85	11	4.22	66.32	114,168	27,066
		191	4.90	8	5.80	64.28	95,129	16,402
2	4	192	33.40	9	5.16	87.24	80,009	15,519
		193	N/D	9	5.16	124.71	87,218	16,917
		194	55.21	12	3.87	101.01	92,550	23,935
		195	85.00	10	4.64	183.15	112,778	24,306
		196	50.56	7	6.63	103.32	102,946	15,531
	5	197	25.40	15	3.09	307.09	318,930	103,102
		198	34.40	18	2.58	133.15	132,755	51,500
		199	11.87	16	2.90	167.67	140,854	48,570
		200	27.00	15	3.09	190.54	156,537	50,605
		201	18.32	14	3.31	172.18	177,145	53,449
		202	7.58	16	2.90	254.42	195,382	67,373
3	6	203	27.08	6	7.73	335.93	149,376	19,316
		204	71.50	5	9.28	193.39	100,581	10,838
	7	206	N/D	5	9.28	515.15	352,592	37,995
		207	N/D	5	9.28	309.21	524,366	56,505
	8	208	75.30	9	5.16	951.18	715,043	138,694
	9	209	N/D	6	7.73	192.84	110,338	14,268
		210	N/D	13	3.57	259.54	81,911	22,949
4	10	211	30.44	15	3.09	183.12	117,247	37,903
		212	28.17	15	3.09	192.84	175,985	56,892
		213	16.06	14	3.31	192.84	101,885	30,741
	11	214	17.54	9	5.16	189.53	216,337	41,962

Table 1 (Concluded)

Reach	Segment	PA	Average % Sand	# Uses (1949-1995)	Frequency of Use (1949-1995) (yrs)	Size of Designated PA (ac)	Per Cycle Discharge (cy)	Annual Discharge (cy)
		215	7.41	11	4.22	1942.84	193,123	45,783
		216	12.17	6	7.73	192.18	149,645	19,351
		217	22.90	8	5.80	195.66	181,505	31,294
	12	218	18.75	12	3.87	192.84	218,230	56,439
		219	13.14	10	4.64	118.36	112,608	24,269
		220	8.05	10	4.64	176.68	153,758	33,138
	13	221	8.35	17	2.73	253.92	177,214	64,928
		222	23.18	10	4.64	279.44	183,776	39,607
5	14	223	56.00	6	7.73	204.64	92,078	11,907
		224	35.17	3	15.5	217.84	58,422	3,777
		225	14.70	1	46.4	81.20	83,936	1,809
		226	N/D	13	3.57	251.39	84,497	23,674
	15	227	22.99	5	9.28	64.28	91,128	9,820
		228	16.48	5	9.28	419.36	122,115	13,159
6	16	229	6.71	3	15.5	128.56	27,740	1,794
		230	N/D	1	46.4	82.48	43,260	932
		231	N/D	1	46.4	126.96	69,982	1,508
		232	16.89	12	3.87	199.84	57,126	14,744
	17	233	8.01	24	1.93	209.46	392,773	203,158
		234	12.62	25	1.86	191.24	227,513	122,582
		235	30.46	5	9.28	199.60	43,053	4,639
		236	N/D	N/D	N/D	106.16	N/D	N/D
	18	239	53.99	6	7.73	48.95	86,056	11,128
		240	39.30	5	9.28	31.04	97,482	10,505
Totals							8,958,808	1,982,848
50-yr Total								99,142,400

* Historic use of PA 221 has varied from higher use (the frequency presented above) in the northern one-fourth to less frequent use (6 - 7 years) in the southern three-fourths.

(3) Source of Material

All dredged material will come from the channel bottom in the Laguna Madre Reach of the GIWW.

e. Description of the Proposed Discharge

(1) Location

The Laguna Madre main channel section as defined for the FEIS currently utilizes 61 existing PAs for contract pipeline placement operations. The PAs in this reach are numbered 175 through 240 (excluding PAs 205, 237, and 238) as described below and are depicted on figures 1-2a through 1-2f.

PLACEMENT AREA TYPE AND GENERAL LOCATION

Placement Area	Type	General Location
PAs 175–202	Open-water areas	ULM
PAs 203, 204, 206–208	Unconfined areas	Sand and mud flats
PAs 208–210	Unconfined areas	Sand and mud flats
PAs 211–224, 227–236, and 239	Open-water areas	LLM
PAs 225 and 226	Partially confined areas	Channel to Harlingen
PA 240	Partially confined area	Port Isabel

(2) Size

The sizes of the PAs, under the DMMP, are presented above in Table 1.

(3) Type of Site and Habitat

The PAs are described in sections 2.9 and 2.11 of the FEIS and in the DMMP (Appendix A).

(4) Time and Duration of Discharge.

The historic frequency of use of each PA is provided in Table 1 and the DMMP (Appendix A).

f. Description of Disposal Method

Hydraulic cutterhead dredges have historically been and are proposed for future maintenance dredging. The DMMP provides for the option, should it become feasible, for the use of bucket dredges and scows with offshore (ocean) placement at PAs 220, 221, 233, and 234.

II. Factual Determinations

a. Physical Substrate Determinations

(1) Substrate Elevation and Slope

All PAs will be open-bay unconfined or semiconfined, with elevations up to several feet above water elevation and depths ranging from water surface to –7 feet mean low water; open-bay confined, for some of which the levees will be placed in a foot or so of water and the rest of the PA will be confined to enclose existing islands. These levees will range up to 15 feet elevation above the surrounding area; and upland confined, also with levee heights up to 15 feet elevation. Geotechnical investigations will be conducted before any levees are constructed to ensure that the substrate is suitable.

(2) Sediment Type

The maintenance material is mostly fine-grained material. Percentage of sand, where known, is provided in Table 1.

(3) Dredged/Fill Material Movement

Maintenance material placed in open-bay unconfined sites will flow out as fluid mud, as described in detail in Chapter 5 of Teeter et al. (2002) and discussed in detail in Section 4.4.1.3 of the FEIS. The fluid mud flow, expected to not extend more than roughly 1,500 feet beyond the point of discharge for any discharge event, was included in the impacts to seagrass and open-bay bottom discussed in sections 4.4.1, 4.4.4, 4.5.2, and 4.5.3 of the FEIS. The approximate limit of 1,500 feet for fluid mud flow was determined during an actual dredging operation in the Laguna Madre (Teeter et al., 2003).

(4) Physical Effects on Benthos

Nonmotile organisms occurring in the sediment in the dredged areas will be placed in PAs and will likely be buried as will those in the area covered by the footprint of the fluid mud at open-bay unconfined and semiconfined PAs. However, for buried organisms, Maurer et al. (1996) showed that many benthic organisms were able to migrate vertically through 35 inches of dredged material under certain conditions; however, the species present in early successional stages of recovery are not the same as those buried by the dredged material. The DDMP plan, to reduce impacts to seagrass, will impact roughly 115 more acres of open-bay bottom than the No-Action alternative as a result of fully confining some of the formerly unconfined PAs. Given the large amount of open water habitat in the Laguna Madre (69,800 acres, calculated from information provided in Onuf 1996b), this is not considered a significant impact, especially considering the reduction in turbidity and impacts that will accrue to seagrasses and algal/sand flats as an overall result of implementation of the DMMP alternative.

(5) Other Effects

None known.

(6) Actions Taken to Minimize Impacts

This project was fully coordinated with State and Federal resource agencies through the ICT, which assisted the USACE in developing the research needs, which led to the studies conducted for the FEIS, and in developing the DMMP. Their recommendations were fully considered and carried out. No mitigation is required. The DMMP reduces direct impacts to seagrass, algal flats, and Essential Fish Habitat (EFH).

b. Water Circulation, Fluctuation, and Salinity Determinations

(1) Water

Impacts to water quality are discussed more fully in the FEIS Section 4.2, but should be improved since the DMMP uses more confined placement than the No-Action alternative.

(a) Salinity

The proposed project should have no impact on the salinity of the Laguna Madre, except for very minor impacts on extremely small areas (FEIS Section 4.2.2).

(b) Water Chemistry

Aside from a temporary increase in local suspended solids, no impacts are expected (FEIS Section 4.2.3).

(c) Clarity

There will be some temporary increase in local turbidity during dredging and placement operations. Water clarity is expected to return to normal background levels shortly after operations are completed. More confined placement and the placing of maintenance material on the tops of islands, using diffusers should reduce the potential impacts from turbidity.

(d) Color

Water immediately surrounding the maintenance dredging area may become discolored temporarily due to disturbance of the sediment.

(e) Odor

There may be a short period when foul odors are emitted by the dredged maintenance material, depending on the organic and oxygen content of the sediments.

(f) Taste

No detectable impacts in the marine environment are expected.

(g) Dissolved Gas Levels

No dissolved gas levels except, perhaps, minor amounts of hydrogen sulfide are expected during dredging and placement operations.

(h) Nutrients

Nutrient levels may be temporarily elevated near the PAs as disturbed sediments release their organic compounds. Studies by Morin and Morse (Dunton et al., 2003) indicated the potential release of large amounts of ammonium, but this has not been shown to be a problem in dredging and placement over the last 50 years in the Laguna Madre.

(i) Eutrophication

Nutrients are not expected to reach levels high enough for periods long enough to lead to eutrophication of the surrounding waters.

(j) Others as Appropriate

None known.

(2) Current Patterns and Circulation

(a) Current Patterns and Flow

Current patterns and flow are not expected to be adversely affected. Some circulation channels will be widened and others maintained by training levees at the recommendation of the ICT.

(b) Velocity

No impacts are expected.

(c) Stratification

No impacts are expected.

(d) Hydrologic Regime

No impacts are expected.

(3) Normal Water Level Fluctuations

No impacts are expected.

(4) Salinity Gradients

Minimal effects are expected (FEIS Section 4.2.2)

(5) Actions That Will Be Taken to Minimize Impacts

No actions required.

c. Suspended Particulate/Turbidity Determination

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site

An increase in suspended particulates and turbidity levels is expected during dredging and placement operations at open-bay unconfined and semiconfined PAs. These are temporary and localized events, which are discussed more fully in FEIS sections 4.2.3, 4.4.1.1, and 4.5.

(2) Effects on Chemical and Physical Properties of the Water Column

(a) Light Penetration

Turbidity levels will be temporarily increased during dredging and placement operations at open-bay unconfined and semiconfined PAs, leading to a temporary reduction in light penetration. These are temporary and localized events, which are discussed more fully in FEIS sections 4.2.3, 4.4.1.1, and 4.5.

(b) Dissolved Oxygen

No adverse impacts to dissolved oxygen are expected above a slight depression if anoxic materials are discharged in open-bay sites.

(c) Toxic metals and organics

No adverse impacts are expected (FEIS sections 4.2.3 and 4.3.2).

(d) Pathogens

None expected or found.

(e) Aesthetics

No adverse impacts expected to aesthetic qualities. The increased use of confinement should reduce turbidity, which should be of beneficial value to recreational fishermen. Should the decreased suspended matter allow for increased seagrass growth, more beneficial impacts to aesthetics should accrue.

(f) Others as Appropriate

None known.

(3) Effects on Biota

Impacts to special aquatic resources (seagrass, wetlands, tidal flats, open water reef habitats); fish and shellfish resources; wildlife; and threatened and endangered species are discussed in FEIS sections 4.4 through 4.7. No increase in adverse impacts to any of these resources will result from the DMMP alternative, relative to the No-Action alternative, except to 115 acres of open-bay bottom. There will be a decrease in relative impacts to the other special aquatic resources, fish resources, and EFH. No other impacts are expected on biota.

(4) Actions Taken to Minimize Impacts

Overall, the DMMP alternative, which was the result of a coordinated effort among all of the agencies represented on the ICT, will significantly reduce impacts to the Laguna Madre ecosystem.

d. Contaminant Determinations

No contaminant problems have been observed in the past and no increase in contaminant levels is expected with the DMMP alternative (sections 4.2.3 and 4.3.1). The potential for contaminants has been evaluated through chemical analyses, grain-size analyses, and some bioassays and bioaccumulation tests. All material is considered acceptable for routine maintenance operations.

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton

Placement operations are expected to have only minor temporary, local impacts on plankton due to increased turbidity levels, which will be reduced with the DMMP alternative.

(2) Effects on Benthos

The DMMP alternative will bury roughly 4,887 acres of open-bay bottom habitat, but not all of it during any one dredging cycle and most for only a temporary period, which would allow for recovery. However, some will be included inside leveed areas and would be permanently lost. Overall, the number of acres of open-bay bottom impacted by the DMMP alternative is 115 more than with the No-Action alternative as a result of converting unconfined PAs to fully confined PAs, but there would be a decrease in impacts to seagrass of 1,307 acres. Sheridan (1999) found seagrasses to have a more diverse benthic community than unvegetated areas. Therefore, there is an overall benefit to the benthos by the DMMP alternative.

(3) Effects on Nekton

As discussed in Section 4.5 of the FEIS, there would be a reduction in impacts to fish resources with the DMMP, primarily because of the reduction in impacts to seagrasses.

(4) Effects on Aquatic Food Web

The estuarine food web will benefit from the reduction of impacts to the seagrass community.

(5) Effects on Special Aquatic Sites

There are no coral reefs or riffle and pool complexes in the project area. There will be a decrease in impacts to tidal flats and seagrasses. There are no definitive surveys to allow a comparison of impacts to coastal wetlands from the DMMP and No-Action alternatives, but the primary production in the Laguna Madre system is dominated by seagrass, not coastal wetlands and phytoplankton as are the other estuaries of Texas, so few coastal wetlands will be impacted by either alternative. The reduction in impacts to seagrasses will more than compensate for any small changes in impacts to coastal wetlands, if any, by the DMMP alternative.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination

Testing has demonstrated no need to dilute the concentrations of effluents from the confined PAs.

(2) Determination of Compliance With Applicable Water Quality Standards

The State of Texas currently recommends a limit of 300 mg/L total suspended solids (TSS) in discharges from confined PAs. PAs that are proposed for confinement of dredged material in the DMMP were sized according to WES models to reduce the TSS to approximately that level. Field testing is necessary to determine whether the 300 mg/L condition can be met. Many of the proposed fully confined PAs will occupy the entire boundary of the existing site and cannot be expanded further without permanently removing shallow bay bottom and seagrass habitat. If TCEQ changes the State Water Quality Standards in the future, the USACE will modify the PAs, if environmentally and economically feasible, to comply with relevant standards. Elutriates with maintenance material indicated no concerns relative to TCEQ Water Quality Standards.

(3) Potential Effects on Human Use Characteristics

(a) Municipal and Private Water Supply

The proposed project will not impact any municipal or private water supplies.

(b) Recreational and Commercial Fisheries

As noted in Section 4.5.1 and 4.5.3, an overall benefit to recreational and commercial fisheries in the Laguna Madre should occur with the DMMP alternative.

(c) Water Related Recreation

Recreational fishing should be improved by the DMMP alternative from the reduction of impacts to seagrasses.

(d) Aesthetics

A reduction in turbidity, which should result from increased use of fully confined PAs, should cause an improvement in the aesthetic qualities in the area.

(e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves

No special sites will be impacted by the project. Cooperation between the USACE, ICT, and the Padre Island National Seashore (PINS) has resulted in the development of a DMMP that includes most of the PINS management plan (Appendix C to the FEIS).

g. Determination of Cumulative Effects on the Aquatic Ecosystem

The project is expected to result in net benefits to the environment without adding to negative cumulative impacts in the aquatic ecosystem.

h. Determination of Secondary Effects on the Aquatic Ecosystem

No significant secondary effects on the aquatic ecosystem should occur as a result of the recommended project unless the reduction in turbidity, which will result from the increase in confined placement and the other DMMP placement practices, allows an increase in seagrass coverage in the Laguna Madre.

FINDINGS OF COMPLIANCE WITH
SECTION 404 (b) (1) GUIDELINES
FOR
MAINTENANCE DREDGING OF THE GULF INTRACOASTAL WATERWAY LAGUNA MADRE, TEXAS

1. No significant adaptations of the Guidelines were made relative to the evaluation for this project.

2. The recommended plan is the result of evaluation of a preliminary array of numerous alternatives and thorough evaluation of at least five for each of the 63 PAs.

3. The recommended plan will not violate any applicable State or Federal water quality criteria or toxic effluent standards of Section 307 of the Clean Water Act.

4. The recommended plan will not adversely affect any State or Federally-listed threatened or endangered species or their critical habitat or violate any protective measures for any sanctuary.

5. The recommended plan will not result in adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The DMMP alternative will provide additional habitat for life stages of marine species and additional habitat for colonial waterbirds. There are no significant adverse impacts expected for the estuarine ecosystem diversity, productivity and stability, or recreational, aesthetic, and economic values.

6. Appropriate steps to minimize potential adverse impacts on the estuarine system include close coordination with State and Federal resource agencies during final design prior to construction of levees for PAs or maintenance dredging to incorporate all valid suggestions. Impacts to seagrasses have been reduced, no mitigation is required.

7. Based on the guidelines, the preferred alternative is specified as complying with the requirements of the Section 404(b)(1) guidelines.

Date: 25 May 2003

Lloyd H. Saunders

Lloyd H. Saunders, Ph.D.
Chief, Planning, Environmental, and
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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 11, 2003

Colonel Leonard D. Waterworth, District Engineer
Department of the Army
Corps of Engineers, Galveston District
P.O. Box 1229
Galveston, Texas 77553-1229

Dear Colonel Waterworth:

This letter is to provide the Texas Commission on Environmental Quality (TCEQ) water quality certification for the Draft Environmental Impact Statement (DEIS) regarding the "Gulf Intracoastal Waterway Laguna Madre, Texas Maintenance Dredging" dated April 2003. The TCEQ staff have actively participated in the U.S. Army Corps of Engineer (Corps) sponsored Interagency Coordination Team (ICT) for over eight years in developing the environmental studies for the DEIS, and to develop the Draft Dredged Material Management Plan (DMMP) for the continued maintenance dredging in the Laguna Madre.

The DMMP has incorporated use of confined disposal, training levees, and seasonal restrictions on dredged material disposal as management actions which should reduce the direct impact to seagrasses by over 1300 acres compared to the current Corps disposal practices in the Laguna Madre. The DEIS provides an important update on the existing information and the environmental consequences of the placement of dredge material from the continued maintenance dredging of the 117 miles of Gulf Intracoastal Waterway (GIWW) through the Laguna Madre.

In June 19, 2003 comment letter on this project the TCEQ identified the need for a commitment to develop and implement a monitoring plan for the project in order to complete the 401 Water Quality Certification for the project. The staff of the TCEQ, Corps, and other ICT member agencies have developed the following language which will be included in the final EIS.

> The management plans for handling placement of dredged material at each PA in the DMMP represent a reduction of impacts to the biological resources in the Laguna Madre relative to present practice. To determine if the goals for each PA are being achieved. The ICT expressed a need to monitor placement operations at the sites. Most concerns centered on the localized impacts at each PA and include the success of the beneficial use of dredged material on some islands to enhance bird use, reducing direct (burial) and indirect (turbidity plumes causing shading) impacts to sea grass, and release of nutrients (ammonia) into the water column.

The ICT will work with the USACE to develop a monitoring plan that includes parameters to be monitored, locations and methodology to use, implementation responsibilities, and other details, as needed. After approval by the USACE, the monitoring plan will be attached to the DMMP as an appendix. The ICT will review the results of each monitoring effort and make recommendations to modify the monitoring plan or the management plans in the DMMP based on these results, in needed. This process will continue throughout the life of the project or until the USACE and ICT determine that there is no need to continue monitoring the placement operations and collect data.

In response to the Public Notice dated April 1, 2003, the Draft Environmental Assessment dated April 2003, and the inclusion of monitoring language in the final EIS, the TCEQ certifies that the activity should not result in a violation of established Texas Water Quality Standards as required by Section 401 of the Federal Clean Water Act and pursuant to Title 30, Texas Administrative Code, Chapter 279.

No review of property rights, location of property lines, nor the distinction between public and private ownership has been made, and this certification may not be used in any way with regard to questions of ownership.

If you require additional information or further assistance, please contact Mr. Mark Fisher, of the Water Quality Assessment Section, Water Quality Division (MC-150), at (512) 239-4586, or by email at *mfisher@tceq.state.tx.us*.

Sincerely,

L'Oreal Stepney for

Margaret Hoffman
Executive Director
Texas Commission on Environmental Quality

MH/PS/sa